KREATIV, INC.

Kuring Light Manual

Kreativ Kuring Light
Model 2000 Operator's Manual

CAUTION: By federal law this device may only be purchased by, or sold to, a licensed dentist.

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Product Label Markings

Type B equipment (defines the degree of protection against electrical shock)

Refer to Operator's Manual

Caution - Heat

~ Alternating Current (AC)

O Off

I On

Chapter 1

Introduction

A Word About This Manual

Every attempt has been made to make this manual easy to use and to thoroughly cover the Kreativ Kuring Light operation. Chapters 1 and 2 cover generalities of the system. Chapters 3 and 4 deal with specifics. This results in an easy to follow and less confusing format.

It is very important that you read this manual thoroughly before you attempt to set up or use the equipment.

Indications For Use

The Kreativ Kuring Light is a high-intensity filtered light source and optical delivery system that produces curing of photo-activated dental composites (400-500nm), or photo-activated bleaching formulations (400-550nm), at four (4) times the rate of conventional light systems. The Kreativ Kuring Light cures all photo-activated dental materials such as those used in direct restorations, sealants, bonding agents, and primers.

WARNING: Light output from this device should be treated with the same caution and safety protocol as laser light. Use only Kreativ safety goggles which have been matched with the wavelength and power intensity of the instrument to provide proper eye protection. Failure to follow these precautions can result in temporary and/or permanent eye damage. All persons in the vicinity of the Kure Light must wear safety eyewear.

Product Features

The Kreativ Kuring Light offers the benefit of a rapid cure speed at a lesser entry, operation, and maintenance expense than an argon laser. Kreativ has developed a light source that combines long life and high lumen output within the spectral bandwidth required for composite polymerization and power bleaching. The unit uses a proprietary lamp to produce energy in the visible spectrum. This light energy is passed through special dichroic band-pass filters that pass energy either in the 400-500nm (composite curing), or 400-550nm (power bleaching) range.

The custom filtering of the Kreativ Kuring Light delivers only the bandwidth of light matching the response curve for the photo-initiators in photocure dental materials or bleach activation.

Other features:

- Calibration-On-Demand using the front panel Radiometer
- Verify-On-Demand, using the front panel Radiometer, to monitor the light output level
- Built-in lamp power measurement system that allows the operator to verify power density
- Microprocessor control for continuous output regulation, system monitoring, and status notification
- Detachable Curing Tip permits autoclave (super-heated, high pressure steam) sterilization
- Disposable protective sleeves for the Curing Tip provides quick turn-around between patients
- Three-digit LED displays for monitoring of power output and exposure time
- Visual and audio signals indicating exposure time

Specifications

Below are listed the basic specifications for the Kreativ Kuring Light. For further technical information contact your sales representative or the Kreativ Service Center.

Power Input (factory preset)	100-127 VAC 50/60 Hz, or 220-240 VAC 50/60 Hz
Weight	14 lbs. (6.35 kg)
Dimensions	7 3/4"H x 14"L x 9 1/2"W (19.7 x 35.5 x 24 cm)
Beam Delivery	1.7 meter Liquid Light Guide with a detachable handpiece and Curing Tip
Curing Power Output Range	Approx. 150-1300m W/cm^2 (depending on Mode selection)
User Selectable Output Spectrum	Cure or Bleach
Curing Mode	400 – 500 nm
Bleaching Mode	400 – 550 nm

Cautions & Warnings

WARNING: Do not look directly into the light exit window, the end of the Liquid Light Guide, or the end of the Curing Tip.

WARNING: Light output from this device should be treated with the same caution and safety protocol as laser light. Use only Kreativ safety goggles which have been matched with the Kreativ Kure Light wavelength and power intensity, to provide proper eye protection. Failure to follow these precautions can result in temporary and/or permanent eye damage. All persons in the vicinity of the Kure Light must wear safety eyewear.

WARNING: Do not expose soft tissues unnecessarily to the direct output from the Curing Tip. The light from this and other visible curing lamps is absorbed in soft tissues, causing mild heat.

WARNING: Do not attempt to internally service the Kure Light. Failure to heed this warning may result in equipment damage and/or personal injury.

WARNING: It is the user's responsibility to determine that the operating environment is free of flammable or dangerous chemicals, and that it is safe to operate the Kure Light.

CAUTION: Do not use any light guide other than the Liquid Light Guide supplied by Kreativ, and do not attempt to operate the unit with the Liquid Light Guide removed.

CAUTION: Protect the Liquid Light Guide from being crushed or tightly bent. Do not bend tighter than a 6-inch radius. Do not autoclave the Liquid Light Guide.

CAUTION: The Curing Tip should not be subjected to ultrasonic cleaning prior to autoclaving, and it should not be exposed to disinfecting or chemical autoclaving solutions which could result in discoloration.

CAUTION: To avoid unintentional activation when not in use, shut the unit off and remove the key.

CAUTION: By federal law this device may only be purchased by, or sold to, a licensed dentist.

CAUTION: Clean the front panel Radiometer target area with isopropyl alcohol between patients if it is to be used to calibrate or verify the light output levels.

CAUTION: If the unit has been dropped, unplug and safety check it very thoroughly for loose or damaged parts before turning it on.

Chapter 2

Unpacking and Setup

Remove the unit from the shipping container and inspect for shipping damage. Wipe the ends of the Liquid Light Guide and Curing Tip with a soft, lint-free cloth. Plug the Liquid Light Guide into the side of the unit (refer to Figure 1) and attach the Curing Tip. Plug the power cord into a grounded AC power source with the proper voltage (115 or 230 VAC). Plug the footswitch into its socket.

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WARNING: To prevent damage to the eye, do not look directly into the light exit window, the end of the Liquid Light Guide, or the end of the Curing Tip.

Keep all shipping containers in the unlikely event that the unit needs to be returned to Kreativ for repair.

Checkout Procedure

Care has been taken to assure ease of use for this product. If you have any questions about the equipment that is not covered in this manual please call the Kreativ Service Department or your local Sales Representative.

Once the unit has been setup, place a probe cover over the Curing Probe and turn the unit on. The keyed power switch is located on the side of the unit. Review Chapter 3 thoroughly prior to use.

Storage

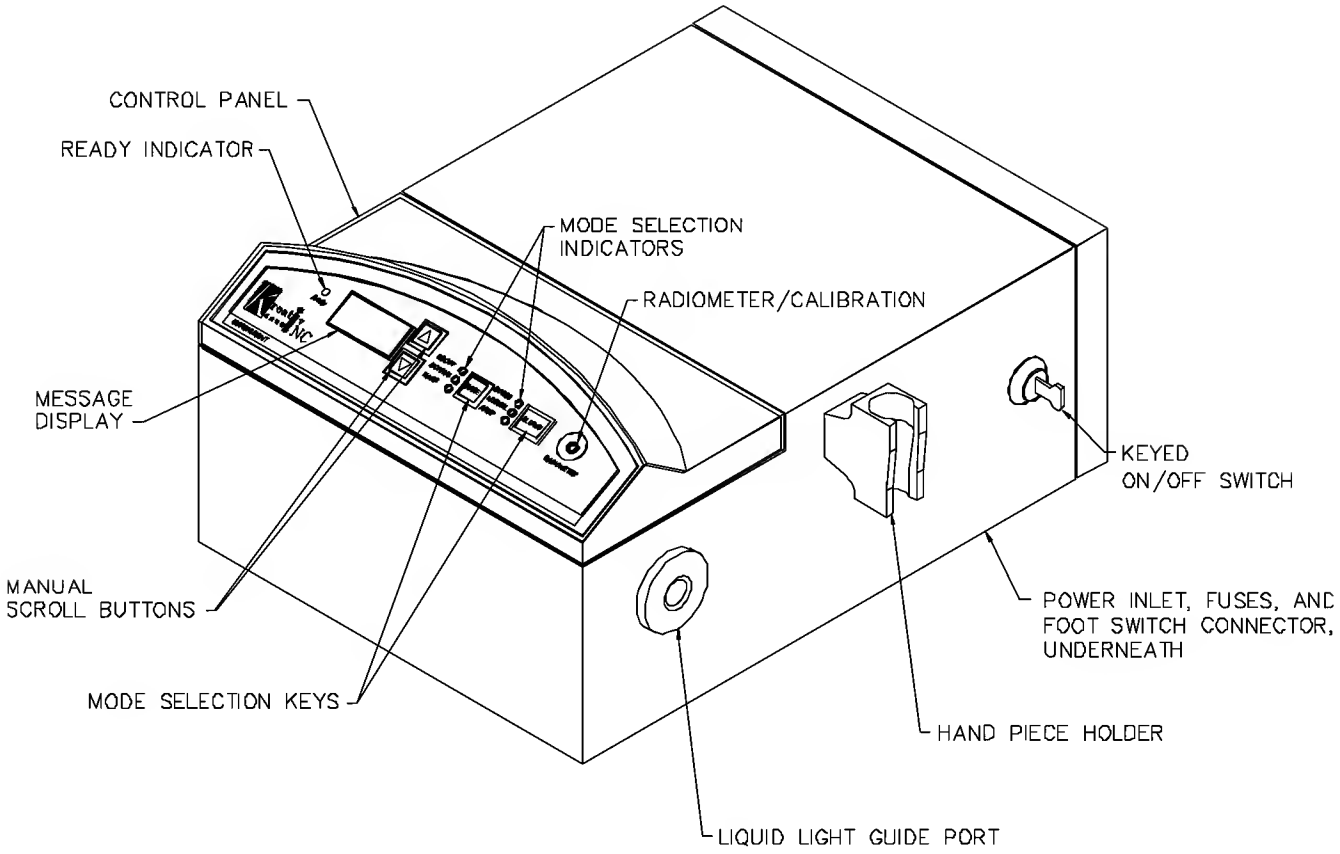
The Kreativ Kuring Light can be stored for extended periods of time in a normal office environment. A dust cover should be used whenever the unit is stored or not in use. Always turn the unit off and remove the key to prevent any unauthorized use of the unit.

Electrical Safety

The Kreativ Kuring Light is designed to meet international medical standards.

Safety: IEC 601-1 EMC: IEC 601-1-2.

Figure 1



Sterilization and Cleaning

The Curing Tips should be protected from contamination and patient contact with the Curing Tip sleeves provided. Discard the sleeve after each use and replace it with a new one prior to next patient usage.

CAUTION: The Liquid Light Guide should not be subjected to autoclaving as this will damage the light guide.

CAUTION: The Curing Tips should not be subjected to ultrasonic cleaning prior to autoclaving and should not be exposed to disinfecting or chemical autoclaving solutions which can result in discoloration.

CAUTION: Always turn off the unit and unplug it prior to cleaning.

CAUTION: Do not use solvents or sharp instruments to clean the unit.

The Liquid Light Guide, the Curing Tip, and the handpiece should be wiped with deionized water using a lint-free wipe or cotton swab, followed by isopropyl alcohol between each use. The front panel's Radiometer target should be cleaned with isopropyl alcohol between patients, if it is used to calibrate or verify the light output level.

If the Curing Tip barrier sleeve is not jeopardized, sterilization of the Curing Tip is not necessary. However, if the barrier has been jeopardized, sterilization of the Curing Tip must be performed using a conventional dental autoclave. The autoclave should be operated at a temperature of 250°F (121°C) for 30 minutes. Allow to cool for 20 minutes before handling.

Dental autoclaves can become contaminated with lubricants used on the air turbine handpiece, which may then coat the Curing Tips. After the sterilization process the input and output faces of the Curing Tip should be examined for contamination. These faces may be cleaned by gently wiping with deionized water followed by isopropyl alcohol, using a lint-free wipe or cotton swab.

Unit surfaces (except for light ports) may be cleaned with commercial cleaning products, including mild, non-abrasive household cleaners. Never apply aerosol or pump sprays directly or near the Kreativ Kuring Light. Airborne sprays can contaminate the optics. If spray cleaners are used, spray them onto a soft, clean cloth and use that as an applicator. Never clean with harsh chemicals, abrasives, or detergents.

Chapter 3

Calibrate-On-Demand

WARNING: Light output from this device should be treated with the same caution and safety protocol as laser light. Use only Kreativ safety goggles which have been matched with the wavelength and power intensity of the instrument to provide proper eye protection. Failure to follow these precautions can result in temporary and/or permanent eye damage. All persons in the vicinity of the Kure Light must wear safety eyewear.

The Kure Light has a "Calibrate-On-Demand" feature that should be used on a regular basis, and any time the user feels the lamp may not be delivering adequate energy levels to the restorative or bleaching materials. The steps for Calibrate-On-Demand are:

1. Steadily hold the flat surface of the Cure Tip flush against the front panel Radiometer target area.
2. Then, press and hold the footswitch. The display will indicate "CAL" for approximately 10 to 20 seconds. When the light goes out and the displays shows "On", calibration is complete and the unit is ready to use.

The unit also displays a "CAL" warning momentarily when it is turned on, indicating that lamp calibration is recommended. This warning appears after a bulb has burned out, and stops appearing after the unit has been successfully calibrated.

If the system detects insufficient light output during calibration, the display will momentarily indicate "E03", and then "On". This may indicate the need to replace the lamp. It can also mean that the Cure Tip was not held steadily or accurately over the center of the Radiometer target. In either case you may still use the unit in this condition, but light output may vary from the desired levels. Therefore, apply the Verify On Demand (see the next section), to measure the light output level before use. If the light output is higher or lower than expected, you may decide to decrease or increase exposure times accordingly.

Verify-On-Demand

The built-in "Radiometer" is also used to verify the light output power at any time. The steps for Verify-On-Demand are:

1. Hold the Cure Tip away from the front panel Radiometer target area.

2. Press the footswitch.

3. Wait one second and then move the Cure Tip to the Radiometer target to verify the light output level in Watts/cm^2.

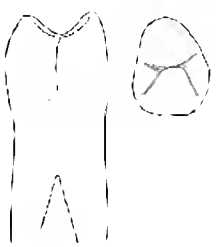
It is recommended that a verification be performed anytime there is a question or concern about the performance or light output of the unit. The radiometer in the Kure Light has been specifically designed to measure power density through the Kure Light optical system. Because of the proprietary nature of this system there may not be a direct correlation between the Kreativ's Kure Light Radiometer and radiometers from other manufacturers.

If the Curing Tip is on the radiometer port before the footswitch is pressed, the system performs the Calibration-On-Demand ("CAL" displays). To verify the power density of the light, place the tip at the Radiometer target one second after pressing the footswitch.

Care should be taken to prevent any build-up of contamination on the radiometer port, Light Guide ends, and/or the Curing Tip ends. Clean these surfaces by wiping gently with a lint-fee cloth or swab.

If the unit is not delivering the power levels expected, check that the Radiometer target, Light Guide ends, and the Curing Tip ends are clean. Attempt the test again. In the event that the unit still will not reach expected levels, call the Kreativ Customer Service Department.

Operation / Recommended Protocols



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Before use, check the Curing Tip surface to be clean and without damage or sharp edges.

Place the Curing Tip within 4mm of the restorative material, sealant, primer, bonding agent, or bleach to be photo-activated.

Curing Mode

Consult the material manufacturer's recommendations for the curing time of the material you wish to cure.

Press the footswitch to initiate the cycle. The unit will beep at the beginning and every five seconds thereafter. The exposure time for the cycle is displayed in seconds.

Normal Cure Mode
5 seconds with the Kreativ Kuring Light = 20 seconds of a conventional curing light.

- Use 5 seconds, or one-half of full curing cycle, with the Kreativ Kuring Light when the manufacturer's recommendation is 20 seconds for the curing of a material. This half-cycle timing is achieved by releasing the switch when the first beep is heard.

10 seconds with the Kreativ Kuring Light = 40 seconds with a conventional curing light.

- Use 10 seconds for a full curing cycle with the Kreativ Kuring Light when the manufacturer's recommendation is 40 seconds or more for the curing of a material.

Boost Cure Mode
This mode increases the curing rate approximately 20% from Normal Mode. This mode may be used when it is felt that extra power or faster curing is required.

Ramp Cure Mode
This mode utilizes the microprocessor to "ramp' the lamp power over a given time period. The purpose of this function is to optimize the physical characteristics of your restoration.

Bleaching Mode

Consult the power bleach material manufacturer's recommendation for the bleaching time of the material you wish to activate. The Kreativ Kure Light has band pass (wavelength) filters designed specifically for photo-thermal accelerators.

Press the footswitch to initiate the cycle. The unit will beep at the beginning and every 60-seconds thereafter. The exposure time, in minutes and seconds, is displayed.

Normal Bleach Mode
Generally the Kreativ Kuring Light produces the same results as a conventional Visible Light Source in one-fourth (25%) of the time.

Boost Bleach Mode
This mode increases the light output power (i.e., photo-thermal energy) approximately 20% from the Normal Bleach Mode. Use this mode when extra power or faster activation is desired.

Ramp Bleach Mode
This mode utilizes the microprocessor to "ramp" the power density over a given time period. The purpose of this function is to optimize power bleach effectiveness.

Chapter 4

Preventative Maintenance

The Kreativ Kuring Light has been designed to be trouble-free and easy to use. Standard cleaning procedures will keep your Kreativ Kuring Light looking new for years to come. Periodic inspection of the power cord and Liquid Light Guide is prudent. If any of these parts appear worn contact the Kreativ Service Department for replacement parts.

WARNING: Always turn the unit off and unplug it unit prior to cleaning.

Care should be taken to follow the cleaning and sterilization procedures in Chapter 2. Deviation from these procedures can result in damage to optical components, thus jeopardizing the unit's performance.

Options/Spare Parts

	Reorder #
Replacement Lamp	170134
Handpiece Assembly 6.4mm	135001-1
Handpiece Assembly 8mm	135001-2
Liquid Light Guide 6.4mm 6'	210098-1
Liquid Light Guide 8mm 6'	210098-2
Orange Safety Goggles	140016
Steri Shields	140017
Safety Cone, 8mm Tip	210126
Tack Tips, 8mm	600160
Footswitch Assembly	170130
Power Cord	600120
Kure Light Operating Manual	990019
Kure Light Literature	990110

Changing the Lamp

Kreativ has developed the Light Source (lamp) used in the Kure Light to optimize light output and minimize IR energy delivered to the patient. Substitution of any lamp other than those supplied by Kreativ will limit effectiveness, may damage the system, and possibly deliver inappropriate energy levels to the patient. In addition, the use of any lamp other than those supplied by Kreativ will void any warranty.

WARNING: If the lamp breaks, the glass pieces are very sharp. Handle with extreme care.

When handling the lamp do not touch the inside of the reflector or the burner. Only touch the outside of the reflector.

To change the lamp, turn the unit off, unplug it, and allow it to cool for 15 minutes. Then, follow the directions in Figure 2.

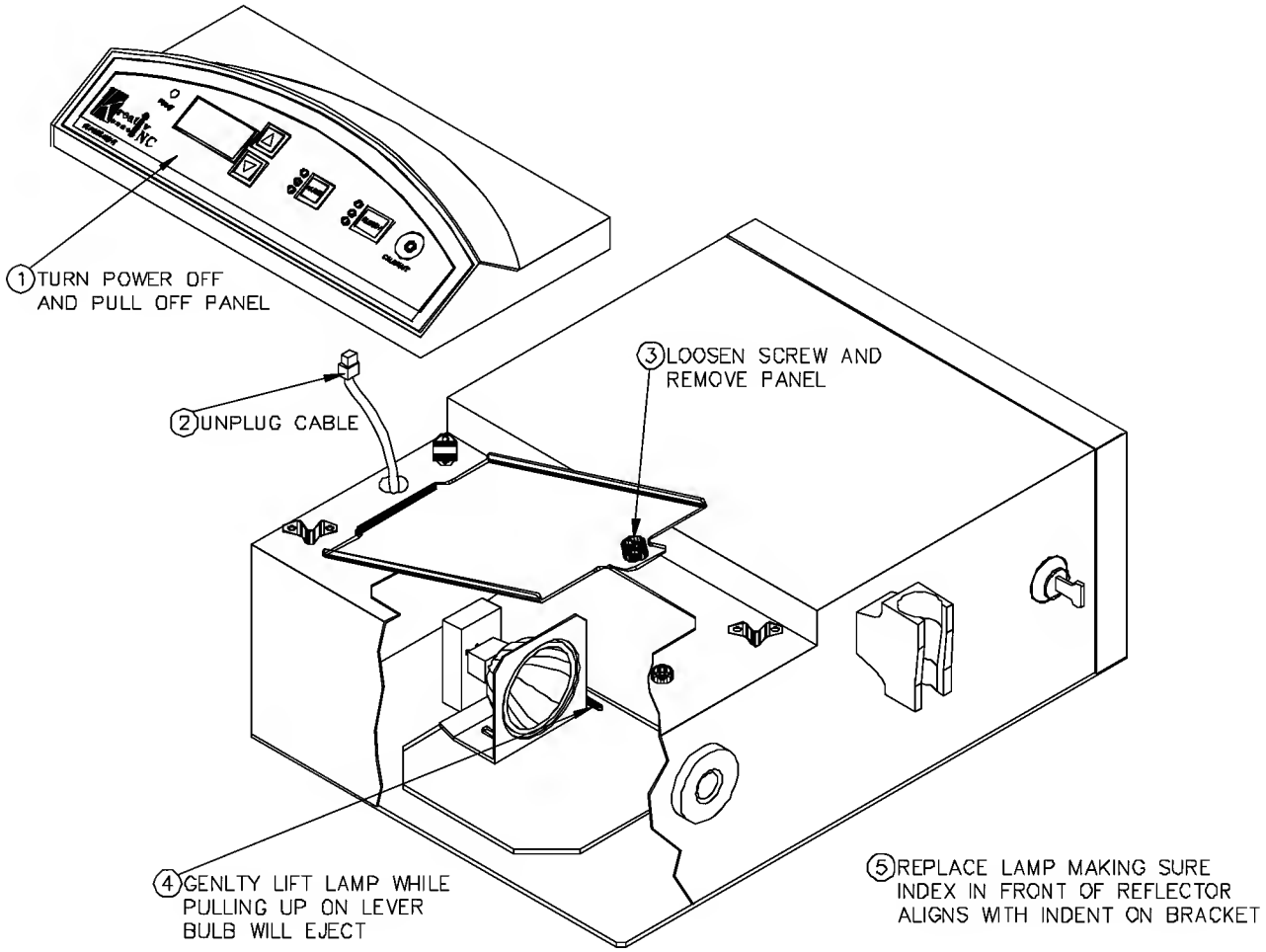
1 TURN POWER OFF AND PULL OFF PANEL
2 UNPLUG CABLE
3 LOOSEN SCREW AND REMOVE PANEL
4 GENLTY LIFT LAMP WHILE PULLING UP ON LEVER BULB WILL EJECT
5 REPLACE LAMP MAKING SURE INDEX IN FRONT OF REFLECTOR ALIGNS WITH INDENT ON BRACKET

Figure 2

Troubleshooting

The only user-serviceable parts in the Kreativ Kuring Light are the lamp and AC fuses. The following table is intended to assist in communicating with the Kreativ Service Department.

Unit will not power up	• Check that power cord is plugged in • Check On/Off switch • Check fuses • Ensure that cable is plugged into the Control Panel. • Call Kreativ Service Department
"E01" is displayed	• Change the lamp • Call Kreativ Service Department
"E02" is displayed	• Verify panels are snapped in place and the Liquid Light Guide is fully plugged into its receptacle • Call Kreativ Service Department
"E03" is displayed	• Restart the unit; if it continues to happen, replace lamp • Call Kreativ Service Department
"E08" is displayed	• Ensure that cable is securely plugged into the Control Panel • Call Kreativ Service Department
"E11" is displayed	• Check that the fan is working; wait for cool down • Call Kreativ Service Department
"E12" is displayed	• Release footswitch and restart
"E14" is displayed	• Cure Tip was not left on Radiometer target long enough during calibration; restart the unit and leave the Tip in place until the calibration is completed
"E15" is displayed	• There is an optical filter selection error during calibration • Call Kreativ Service Department
"E03", "E06", "E10" during calibration	• Do the calibration again; be sure the Tip and the Radiometer surface are clean • Call Kreativ Service Department
Any other "Error Code"	• Call Kreativ Service Department
Unit will not reach "Ready" state	• Call Kreativ Service Department
Service LED is turned on	• Call Kreativ Service Department
Light Guide and Curing Tip will not connect properly	• Call Kreativ Service Department
Light Guide ends or the Curing Tip end appear scratched or damaged	• Order replacement parts from Kreativ

Limited Warranty

Kreativ provides a limited warranty for equipment to be free from defects in material and workmanship for a period of 12 months from the date of shipment. This limited warranty applies only to the original purchaser / user of the equipment.

In order to comply with this limited warranty, all internal adjustments or modifications must be made by Kreativ Inc., or its authorized representative. The liability of Kreativ Inc., under valid warranty claims, is limited to repair or replacement at Kreativ's facility or purchaser's place of business, at the option of Kreativ, Inc.

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